

REMARKS

In response to the non-final Office Action mailed on April 28, 2010 ("the Office Action"), Applicants respectfully request that the Office favorably consider the following remarks.

I. Status of the Claims and Summary of the Office Action

A. Status of the Claims

Upon entry of this amendment, claims 1, 3, 4, 6-10, 14, 15, 19, 20, 22, 23, 27-36, 38-40, 42-48, 50-52, and 76-109 are pending. Claims 1 and 8-10 are amended, while claims 2, 5, 11-13, 16-18, 21, 24-26, 37, 41, 49, and 53-75 are canceled. New claims 76-109 are added.

Claim 1 has been amended to recite that the claimed particles "have an average dimension ranging from 10 nm to 35 nm." New claims 76-109 have been added to recite that the claimed particles "have an average dimension ranging from 0.5 μ m to 10 μ m." Dependent claims 8-10 have been amended to comport with the range recited in claim 76.

The amendments to claims 1 and 8-10, along with new claims 76-109, do not introduce any new matter. Support for these claims can be found at least at paragraphs 93 and 94 of the specification, along with the original claims of the application.

B. Summary of the Office Action

In the Office Action, the Office rejects claims 1, 3, 4, 6-10, 14-16, 18-23, 27-52, and 73-75 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,583,882 ("Bartrug") in view of U.S. Patent No. 4,440,881 ("Girgis") for reasons of record.

In the Office Action, the Office reiterates its prior characterizations of the Bartrug and Girgis references as set forth in the final Office Action of October 26, 2009, and reiterates the reasons the Office believes render the pending claims obvious under 35 U.S.C. § 103(a). Notably, the Office also states that “a limitation with respect to the size of an article, such as the particle size, is not ordinarily a matter of invention,” (see Office Action at 4 (citing *In re Rose*, 105 USPQ 237 (CCPA 1955))), and that for the claimed particle ranges, “it is not inventive to discover the optimum or workable ranges by routine experimentation.” (*Id.* at 5 (quoting *In re Aller*, 105 USPQ 233 (CCPA 1955).))

Further, in response to Applicants’ arguments of February 25, 2010, the Office asserts that (1) claim 1 is obvious over Bartrug in view of Girgis’s teaching of particle sizes less than 200 nm, because claim 1 is not limited to particle sizes above 200 nm; (2) the teaching in Girgis of particle sizes lower than 200 nm, such as 50 nm or 70 nm, in combination with the “desire for a low average particle size,” would have provided motivation to perform routine experimentation to determine an optimal and/or desirable particle size and range; (3) Bartrug and Girgis are analogous prior art because they are each drawn to coating glass fiber products with elastomeric materials, and that the test for combining references is what the combination of the disclosures taken as a whole would suggest to a skilled artisan; and (4) there is no evidence on record that the glass fiber products of the prior art do not possess the present claimed properties of a reduction in tackiness. (Office Action at 8-9.)

II. Response to the 35 U.S.C. § 103(a) Claim Rejections

The Applicants disagree with the Office’s arguments and conclusions in the Office Action. Girgis does not teach or suggest Applicants’ claimed particle range of

“from 10 nm to 35 nm,” as recited in independent claim 1, based on its broad disclosure of “less than 200 nm.” Moreover, Girgis explicitly teaches away from particle sizes above 200 nm, thereby distinguishing Applicants’ claimed particle range of “from 0.5 μ m to 10 μ m,” as recited in independent claim 76, from the disclosure of Girgis.

A. Girgis’s General Teaching of Particle Sizes Lower than 200 nm Does Not Teach Particles Ranging from 10 nm to 35 nm

Nothing in Girgis’s generalized teaching of particles less than 200 nm points to particles 10 nm to 35 nm in size. The Office’s argument that any range below 200 nm is obvious in view of Girgis cannot stand.

The Office states that Girgis’s teachings of “various particle sizes lower than 200 nm such as 50 nm or 70 nm in combination with his desire for a low average particle size, would have provided motivation to the skilled artisan . . . to perform routine experimentation to determine an optimal and/or desirable particle size and range.” (Office Action at 8.) However, Applicants submit there is nothing routine in testing all particle sizes below 200 nm (and even below 50 nm for that matter) to see the effect, if any, of these particle sizes. Determining an appropriate particle size or sizes within these ranges requires undue experimentation. Under the Office’s reasoning, claims directed to 2 nm or 44 nm, as mere arbitrary examples, would also seemingly be obvious over Girgis, notwithstanding the fact that nothing in Girgis teaches these particular particle sizes. The Office’s selection of particle sizes within the 200 nm range (in this case Applicants’ claimed particle sizes of 10 nm to 35 nm) is impermissibly self-serving and based on hindsight, for it is solely based on Applicants’ specific disclosures

of ranges. The Office's approach to obviousness by hand-picking the claimed ranges is not sufficient to render the claimed particle range obvious over Bartrug in view of Girgis.

B. Girgis Teaches Away from the Claimed Particle Sizes Above 200 nm

As previously indicated, Girgis teaches away from any particle size above 200 nm. The Office admits this, noting that Girgis teaches that the particle size of the elastomeric latex "must be less than 2000 angstroms (0.2 μ m; 200nm)." (Office Action at 3-4; *id.* at 5; *see also* 10/26/09 Final Office Action at 3, 4, and 8.) Indeed, Girgis explicitly states that "the particle size of the non-selfcross-linkable elastomeric latex must be less than 2000 Angstroms and preferably from about 500 to about 1700 Angstroms." (Girgis, col. 8, lines 23 to 26 (emphasis added).) Accordingly, because Girgis *teaches away* from any particle sizes above 2000 Angstroms (or 200 nm), Girgis cannot be combined with Bartrug to render obvious coated strands with particle sizes above 2000 Angstroms. Thus, Applicants submit that pending claims reciting particle sizes of 0.5 μ m to 10 μ m are in allowable form over Bartrug in view of Girgis.

C. Applicants' Claimed Particle Sizes Are "A Matter of Invention"

Applicants also submit that the pending claims are not obvious over the combination of Bartrug and Girgis under 35 U.S.C. § 103(a), because the sizes of particles used in the current invention alter the properties of the coated fibers to achieve different results. For example, Applicants found that the 35 nm and 0.5 μ m particle sizes impart a significantly lower frictional tension to the coated strands, and also that the 35 nm particles do not open the filament bundle and reduce interfilament bonding. (Spec. at 156-159.).

More specifically, Applicants have found that 35 nm particles reduce the frictional tension of coated fibers to a value of 140 g, with a standard deviation of 21.9 g. (*Id.* at 157, Table 20A.) Accordingly, the 35 nm particles reduce the frictional tension of fibers by at least 160 g (based on a 300 g value for uncoated fibers), and even as much as 181.9 g when accounting for the 21.9 g standard deviation. (*Id.*) Additionally, the specification states that the 35 nm particles in the binder composition do not reduce the interfilament bonding of the filament bundle, and the specification provides data in Figure 14 showing that this aspect was at least observed for pressures below 40 psi. (See *id.* at 158-59.) Similarly, Applicants found that 0.5 μ m particles on a fiber decreased the fiber's frictional tension value to 163 g. These particles reduced the frictional tension of fibers by at least 137 g (based on a 300 g value for uncoated fibers), and even as much as 155.1 g when accounting for the 18.1 g standard deviation. (*Id.* at 157, Table 20A.) It is believed that the 0.5 μ m particles reduce the interfilament bonding by opening the filament bundle. (*Id.* at 159, ¶ 437; see also Figure 14.)

By showing that the 35 nm particles and the 0.5 μ m particles impart different properties to the coated strands, Applicants have provided evidence of a result different in kind, not just degree, which is directly attributable to the particle dimensions claimed. This finding sets the current facts apart from those of *In re Aller* and *In re Rose* (upon which the Office continues to rely), where there was no evidence that the claimed changes in temperature and concentration for a chemical reaction, or the changes in size and weight of lumbar packages, respectively, resulted in a change of kind, as opposed to just degree. See *In re Aller*, 105 USPQ 233, 235 (C.C.P.A. 1955); *In re Rose*, 105 USPQ 237, 240 (C.C.P.A. 1955). Thus, the Office's assertion that the size of

an article, such as the particle size, is not ordinarily a matter of invention cannot stand. Cf. MPEP § 2144.04(IV)(A) (citing *Gardner v. TEC Sys., Inc.*, 725 F.2d 1338 (Fed. Cir. 1984) (holding that the claimed device was not patentably distinct from the prior art where the device's "claimed relative dimensions would not perform differently than the prior art device"))).

Accordingly, Applicants submit that pending independent claims 1 and 76, which recite a particle dimension range of "from 10 nm to 35 nm" and "from 0.5 μ m to 10 μ m," respectively, are in allowable form.

III. CONCLUSION


For the foregoing reasons, Bartrug in view of Girgis does not teach or suggest each and every element of the pending claims, or render the pending claims obvious under 35 U.S.C. 103(a). Applicants therefore submit that the 35 U.S.C. § 103(a) rejection of pending claims 1, 3, 4, 6-10, 14, 15, 19, 20, 22, 23, 27-36, 38-40, 42-48, and 50-52 in view of Bartrug and Girgis is improper, and should be withdrawn, and that new claims 76-109 should also be allowed. Applicants therefore request the Office's reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: October 28, 2010

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